California Air Resource Board **Emission Inventory Branch** Summary of Agricultural Emissions Research in California

			-				
Project ID	Project Ty		Status	In progress	Estimated	June 2	2009
1	Dairy Emis	ssions			Completion		
					Date		
Project Name	Α						
		Monitoring (N	NAEMS) Pro	ject: Air Emissions	s from Californi	а	
airies		•	, ,				
Project Desc	ription						
				rations and compil			
				consensus for em ncludes monitoring			
				h Fourier transform			
TIR) analyz		,	5 1 1 1 1		(
ય 1		Affiliation F	DI 1	Fund Source 1		Δmc	ount 1
T. Mitloehner	,	UC Davis	<u>' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' </u>	Ag Air Research	Council		50,000
. Wildociffici				(AARC)		*-	
PI 2		Affiliation F	12	Fund Source 2		Amo	ount 2
		7				7	W. K. 2
기 3		Affiliation F	913	Fund Source 3		Amo	ount 3
Report Loca	ation						
rtoport 200t	20011						
D 1 (1) (4						
Related info		2009					
Status upua	ile as UI IVI	ay 2000					
	_						
Related info) 2						
İ							

California Air Resource Board Emission Inventory Branch Summary of Agricultural Emissions Research in California

	Garri	mary or Ag	ji ioaitai a		scaron in oai	ii Oi i iid	
Project ID	Project Ty		Status	In progress	Estimated	May 2009	
2	Dairy Emis	ssions			Completion		
					Date		
Duois of Nove							
Project Name		fornia Dairios	Dart I (NI)	AEMS Add-on) [Inc	sludes monitorin	g of	
				urier transform infr			
analvzerl		one doing op	on pain o		4.04 (0. 1.111)		
Project Desci							
estimation of methods/prod	emission r cedures fro a commer	ates, promo m livestock	te a nationa operations.	erations and comp al consensus for er Includes monitorin th Fourier transfor	missions-estimat g of VOCs and 0	tion	
PI 1		Affiliation F	VI 1	Fund Source 1		Amount 1	
F. Mitloehner		UC Davis	•	ARB		\$40,000	,
PI 2		Affiliation F	12	Fund Source 2		Amount 2	
Y. Zhao		UC Davis					
PI 3		Affiliation F	213	Fund Source 3		Amount 3	
Report Loca	ation						
Related info		ay 2008					
Related info	2						
TOIGIGG IIIIO							

California Air Resource Board Emission Inventory Branch Summary of Agricultural Emissions Research in California

Project ID Project Type		Status	In progress	Estimated	May 2	2009
3 Dairy Emis	ssions			Completion Date		
				Date		
Project Name						
Air Emissions from Calif	ornia Dairies, F	Part II				
Project Description						
Accurately assess emiss estimation of emission ra methods/procedures fro	ates, promote a	a national c	onsensus for e	missions-estima	tion	
emissions at a commerc FTIR) analyzer						
	Affiliation DL 4	-	Tunal Courses 4		Λ	aa. 1
PI 1	Affiliation PI 1 UC Davis		Fund Source 1 CDFA			ount 1 \$70,000
F. Mitloehner	OC Davis		DDFA		•	\$70,000
PI 2	Affiliation PI 2	: F	Fund Source 2		Am	ount 2
Y. Zhao	UC Davis					
PI 3	Affiliation PI 3	F	Fund Source 3		Am	ount 3
Report Location						
Related info 1						
Status update as of Ma	ay 2008					
Related info 2						
Please provide proje Janet Spencer, Plan						

jspencer@arb.ca.gov

916.324.2717

California Air Resource Board **Emission Inventory Branch** Summary of Agricultural Emissions Research in California

Project ID 4	Project Typ Dairy Emis		Status	In progress	Estimated Completion Date	May 2	2009
Project Name)						
Air Emissions		ornia Dairies	s, Part III				
Project Desc	ription						
estimation of methods/prod	emission ra cedures fror a commerc	ites, promot n livestock (e a national operations.Inc	ations and compi consensus for er cludes monitorin Fourier transfori	nissions-estima g of VOCs and	ition GHG	
PI 1		Affiliation P	11	Fund Source 1		Am	ount 1
F. Mitloehner		UC Davis		JC Davis, Colleç Env'al Sciences	ge of Ag and		\$40,000
PI 2		Affiliation P	12	Fund Source 2		Am	ount 2
Y. Zhao		UC Davis					
PI 3		Affiliation P	13	Fund Source 3		Am	ount 3
Report Loca	ation						
Related info		y 2008					
Related info	2						
Please n	rovide proje	ct updates a	and correction	ns to:			

Janet Spencer, Planning and Technical Support Division jspencer@arb.ca.gov 916.324.2717

California Air Resource Board **Emission Inventory Branch** Summary of Agricultural Emissions Research in California

	Project Typ		Status	In progress	Estimated	July 2	2008
5	Dairy Emis	sions			Completion		
					Date		
Project Name	9						
		nission Mod	lel to Estimate	e Air Emissions f	rom California		
Project Desci	ription						
			neering studie model for VO	s, develop a fee C emissions.	d/waste stream		
PI 1		Affiliation F	PI 1	Fund Source 1		Am	ount 1
R. Zhang		UC Davis		ARB			300,000
PI 2		Affiliation F	PI 2	Fund Source 2		Am	ount 2
F. Mitloehner		UC Davis					
PI 3		Affiliation F	PI 3	Fund Source 3		Am	ount 3
A. Goldstein		UC Berkel	еу				
Report Loca	ation						
Related info	1						
Project desc http://www.a		g/caf/Ruiho	ongZhangDair	ySymposiumOt(06.pdf		
Related info							
Field phase	in prgress a	as of Feb. 2	2008				
D.							

California Air Resource Board **Emission Inventory Branch** Summary of Agricultural Emissions Research in California

Project ID 6 Project T Dairy Em			Satimated Danu Completion Date	ary 2007
Project Name				
	oring of ROG and Am	monia in the Central Valle	y of California	
Project Description				
Maintain staffing and s funded ROG project ur		aboratory work to continue	the ARB	
임1	Affiliation PI 1	Fund Source 1	Am	nount 1
C. Krauter	CSU Fresno	CSU Agricultural Res		5208,000
미 2	Affiliation PI 2	Fund Source 2	An	nount 2
D. Goorahoo	CSU Fresno	ARB		
임 3	Affiliation PI 3	Fund Source 3	An	nount 3
3. Goodrich	CSU Fresno	SJVAPCD		
Report Location				
Related info 1				
	n/chief/conference/ei	15/session6/beene.pdf		
Related info 2				
	n/chief/conference/ei	14/session1/goorahoo_pre	es.pdf	

California Air Resource Board **Emission Inventory Branch** Summary of Agricultural Emissions Research in California

Project ID Pro	oject Type	Status	Partially	Estimated	June 2006
7 Da	iry Emissions		complete	Completion	
	-			Date	

Project Name

Evaluating Dairy Ammonia, Methane, and Hydrogen Sulfide Emissions Using Tunable Diode Lasers

Project Description

Develop real-time methods for evaluating process and time specific emission profiles for NH3, CH4, and H2S at dairies. A program to monitor ammonia emissions using the USEPA Emission Isolation Flux Chamber began in 2006 and will continue through 2008.

PI 1	Affiliation PI 1	Fund Source 1	Amount 1
D. Goorahoo	CSU Fresno	CSU Agricultural Research	\$98,000
		Initiative	
PI 2	Affiliation PI 2	Fund Source 2	Amount 2
C. Krauter	CSU Fresno	ARB	
PI 3	Affiliation PI 3	Fund Source 3	Amount 3
B. Goodrich	CSU Fresno	Boreal Lasers	

Report Location

http://www.epa.gov/ttn/chief/conference/ei15/ses sion6/beene.pdf

Related info 1

http://www.4cleanair.org/Documents/APCODetermination.pdf

Related info 2

Abstract on page 9 at this site:

http://www.epa.gov/ttn/chief/conference/ei14/final2005.pdf

California Air Resource Board **Emission Inventory Branch** Summary of Agricultural Emissions Research in California

Project ID 8 Project Type Dairy Emission	Status ns	In progress	Estimated Completion Date	June 2008			
Project Name							
Dairy Operations: An Evalua	ation and Comparison	n of Baseline and Po	tential Mitiga	tion			
Practices for Emissions Reductions In the San Joaquin Valley							
Project Description							
Project is designed to obtain	n data needed to bet	ter estimate baselin	e dairy emissi	ons			
and to estimate the emission	n reductions achieva	ble with available co	ntrol technolo	gies.			
PI 1	filiation PI 1	Fund Source 1		Amount 1			
	SU Fresno	ARB		\$250,000			
o. Madici				+ ===,			
PI 2	filiation PI 2	Fund Source 2		Amount 2			
D. Goorahoo CS	SU Fresno	possible matching f CSUS Fresno Agric		\$250,000			
PI 3	filiation PI 3	Fund Source 3		Amount 3			
B. Goodrich CS	SU Fresno						
Report Location							
Related info 1							
http://www.epa.gov/ttn/chie	ef/conference/ei15/se	ession6/beene.pdf					
Related info 2							
Continuation of previous w	rork						

California Air Resource Board Emission Inventory Branch Summary of Agricultural Emissions Research in California

	oject Type iry Emissions	Status	In progress	Estimated Completion	December 2006		
				Date			
Project Name							
Air Emission Miti	Air Emission Mitigation Techniques and Technologies for California Dairies						
Project Descripti							
	M10, 2.5, VOC, and eness. Includes lag			ractices for			
PI 1	Affiliation F	PI1 F	und Source 1		Amount 1		
F. Mitloehner	UC Davis		Merced County via and UC matching	SWRCB	\$600,000		
PI 2	Affiliation F	PI2 F	und Source 2		Amount 2		
R. Zhang	UC Davis						
PI 3	Affiliation F	PI3	und Source 3		Amount 3		
P. Robinson	UC Davis						
Report Location	n						
Related info 1							
Project objective described in PowerPoint at: ftp://ftp.arb.ca.gov/carbis/ag/agadvisory/mitloehner05jan26.pdf							
Related info 2	0007 1/00 7						
SJVAPCD Aug. 2005 VOC Emission Factors for Dairies, http://www.4cleanair.org/Documents/APCODetermination.pdf							

California Air Resource Board **Emission Inventory Branch** Summary of Agricultural Emissions Research in California

	Project Type Dairy Emissions	Status	Completed		Estimated Completion Date	June 2005
--	------------------------------	--------	-----------	--	---------------------------------	-----------

Project Name

Volatile Organic Compound (VOC) Emissions from Cows Fed Typical California Rations

Project Description

Measurements of alcohols, volatile fatty acids, phenols, and methane (CH4) emitted from nonlactating (dry) and lactating dairy cows and their manure under controlled conditions. The experiment was conducted in an environmental chamber that simulates commercial concrete-floored freestall cow housing conditions. The fluxes of methanol, ethanol, and CH4 were measured from cows and/or their fresh manure.

PI 1	Affiliation PI 1	Fund Source 1	Amount 1
F. Mitloehner	UC Davis	US EPA	\$75,000
PI 2	Affiliation PI 2	Fund Source 2	Amount 2
B. Flocchini	UC Davis		
PI 3	Affiliation PI 3	Fund Source 3	Amount 3
P. Robinson	UC Davis		

Report Location http://jeq.scijournals.org/cgi/content/full/37/2/615

Related info 1

http://www.4cleanair.org/Documents/APCODetermination.pdf

Related info 2

UCD Dairy Air Quality Symposium presentation 10-11-06 available at: http://www.arb.ca.gov/ag/caf/FrankMitloehnerDairySymposiumOct06.pdf

California Air Resource Board **Emission Inventory Branch** Summary of Agricultural Emissions Research in California

Project ID	Project Type Emissions		Status	Completed	Estimated Completion	June	2007
11	LIIIISSIUIIS	iviiliyaliUH			Date		
Project Name		Λ Λ	ilana ana Alia Oura	lite a marel Nicotalia as	t Ornalia a		
Effects of Liq	uid Dairy ivi	anure Aerai	ion on Air Qua	llity and Nutrien	t Cycling		
Project Desc							
treatment tec	hnology for stems can c	California c	lairies to deter	n mitigation effe mine whether/to ironmental impa	what extent a	erobic	
PI 1		Affiliation F	7I 1 F	und Source 1		Am	ount 1
C. Collar		UCCE - Kir County	ngs	IC ANR		;	\$30,000
PI 2		Affiliation F	PI 2	und Source 2		Am	ount 2
F. Mitloehner		UC Davis					
PI 3		Affiliation F		und Source 3		Am	ount 3
J. McGarvey		USDA - AF	RS L	ICCE			
Report Loca] 	Managemer Community http://www.n	nt: Treatment, l Relations". Ava raes.org/nra_c	book, "Dairy Ma Handling, and ailable for \$42 a order.taf?_funct ence=84298600	at: ion=de		
Related info	1						
Related info	2						

California Air Resource Board **Emission Inventory Branch** Summary of Agricultural Emissions Research in California

	Project Type	Status	Completed	Estimated	2006
12	Dairy Waste			Completion Date	
				Date	
Project Name	9				
Characteriza	tion of Dairy Waste Ma	anagement Str	ategies with Reg	gard to Pathoge	ns
and Air Quali	ty				
Project Desc	ription				
Examine the	effect that aerobic and	d anaerobic tre	atments have or	n the microbiolo	gical
and chemical	properties of waste.				
PI 1	Affiliation		Fund Source 1		Amount 1
F. Mitloehner	UC Davis		JSDA - ARS		\$30,300
PI 2	Affiliation		Fund Source 2		Amount 2
R. Zhang	UC Davis				
PI 3	Affiliation	PI 3	Fund Source 3		Amount 3
Report Loca	Abstract a	vailable at:			
Report Loca			esearch/publica	tions/p	
		htm?SEQ_NO			
Related info	1				
Related info	2				
TOIGIGG IIIIC	-				
Please p	rovide project updates	and correction	ns to:		

Janet Spencer, Planning and Technical Support Division jspencer@arb.ca.gov 916.324.2717

6/29/2009

California Air Resource Board **Emission Inventory Branch**

	Project Typ Dairy Emis		Status		Estimated Completion Date	May 2007	,
roject Name)						
stimating an	nd Reducing	Air Emissio	ns from Dai	ry Feeding Opera	ations		
roject Descr	ription						
PI 1		Affiliation Pl	1	Fund Source 1		Amoun	t 1
. Mitloehner		UC Davis		USDA - CSREES	S	\$278,	000
12		Affiliation Pl		Fund Source 2		Amoun	t 2
t. Zhang		UC Davis		USDA - ARS?			
13		Affiliation Pl	3	Fund Source 3		Amoun	t 3
C. Krauter		CSU Fresno	כ	CSU Fresno			
Report Loca	ntion						
rtoport Lood							
Related info	1						
Related info	2						
Related info	2						
Related info	2						

6/29/2009

California Air Resource Board **Emission Inventory Branch**

Project ID Project To Dairy Nut		us	Estimated Completion	June 2008
			Date	
roject Name				
utrient Balances in Ca	alifornia Dairy Herds			
Project Description				
roject Becompain				
PI 1	Affiliation PI 1	Fund Source 1		Amount 1
A. Costillo	UCCE Merced	UC ANR		\$40,000
	A (CIV. C) DI O			
PI 2 F. Mitloehner	Affiliation PI 2 UC Davis	Fund Source 2		Amount 2
. Willioeriner	OC Davis			
PI 3	Affiliation PI 3	Fund Source 3		Amount 3
). Bacon	UCCE Tulare			
Report Location	http://calag.ucop.edu	ı/0702AMJ/pdfs/DairyM	liner	
·	als.pdf			
Related info 1				
Related info 2				
Related info 2				
Related info 2				

	ľ
)ate.	ı

California Air Resource Board **Emission Inventory Branch**

Project ID 15 Project ID Dairy En		Status		Estimated Completion Date	March 2008
roject Name					
fects of Dietary Run	nensin® on GH	G and VOC E	missions from	Lactating Dairy	Cows
roject Description					
l 1	Affiliation Pl	1	und Source 1		Amount 1
Mitloehner	UC Davis	E	li Lilly-Elanco		\$50,000
12	Affiliation Pl	2 F	und Source 2		Amount 2
. DePeters	UC Davis				
13	Affiliation PI		und Source 3		Amount 3
MacGarvey	USDA - AR	S			
	_				
Report Location					
Related info 1					
Related info 2					

|--|

6/29/2009

California Air Resource Board Emission Inventory Branch Summary of Agricultural Emissions Research in California

Project III) Project	t Type	Status		Estimated	May 2010
Project ID Project Education	tion Study	Status		Completion	Iviay 2010
	lion Grady			Date	
<mark>roject Name</mark> /estern Region Dai	ry Odor and Air (Quality Educ	ation		
ootom rtogion Dai	., 000. 0.10.7	addinty Eddo	allon		
Project Description					
N 4	Affiliation P	I 1	Fund Source 1		Amount 1
P <mark>I 1</mark> P. Ndega	WSU		USDA - SARE		\$89,000
. Nueya					
71 2	Affiliation P	12	Fund Source 2		Amount 2
. Mittloehner	UC Davis				
13	Affiliation P		Fund Source 3		Amount 3
R. Sheffield	Univ. of Ida	ho			
Report Location					
Related info 1					
Other researchers	from NM State (I	R. Hagevoor	t) and OSU (M. G	Samroth)	
		-			
Dalatad into 0					
Related Into 7					
Related info 2					
Related Into 2					
	project updates a				

ate.	6

6/29/2009

California Air Resource Board Emission Inventory Branch Summary of Agricultural Emissions Research in California

Project ID 17 Dairy Emissions Status Completion Date ??? Project Name Evaluation of Key Dairy Emission Sources - Quantification of VOCs and Ammonia for Feed, Corrals, and Land Application of Wastes Project Description Affiliation PI 1
Project Name Evaluation of Key Dairy Emission Sources - Quantification of VOCs and Ammonia for Feed, Corrals, and Land Application of Wastes Project Description Affiliation PI 1 CE Schmidt Affiliation PI 2 Affiliation PI 2 Fund Source 1 ?? Amount 1 PI 2 Affiliation PI 2 Fund Source 2 Amount 2 PI 3 Affiliation PI 3 Fund Source 3 Amount 3
Project Name Evaluation of Key Dairy Emission Sources - Quantification of VOCs and Ammonia for Feed, Corrals, and Land Application of Wastes Project Description Affiliation PI 1 CE Schmidt PI 2 Affiliation PI 2 Fund Source 1 Project Description Fund Source 1 Fund Source 2 Amount 2 Affiliation PI 3 Fund Source 3 Amount 3
Evaluation of Key Dairy Emission Sources - Quantification of VOCs and Ammonia for Feed, Corrals, and Land Application of Wastes Project Description PI 1
Evaluation of Key Dairy Emission Sources - Quantification of VOCs and Ammonia for Feed, Corrals, and Land Application of Wastes Project Description PI 1
Project Description Affiliation PI 1 CE Schmidt PI 2 Affiliation PI 2 Fund Source 1 PI 2 Affiliation PI 2 Fund Source 2 Amount 2 Fund Source 3 Amount 3
Project Description Affiliation PI 1 CE Schmidt PI 2 Affiliation PI 2 Fund Source 1 ?? Fund Source 2 Amount 2 PI 3 Affiliation PI 3 Fund Source 3 Amount 3
Affiliation PI 1 CE Schmidt PI 2 Affiliation PI 2 Fund Source 1 ?? Fund Source 2 Amount 2 PI 3 Affiliation PI 3 Fund Source 2 Amount 2 Fund Source 3 Amount 3
CE Schmidt PI 2 Affiliation PI 2 Fund Source 2 Amount 2 PI 3 Affiliation PI 3 Fund Source 3 Amount 3
CE Schmidt PI 2 Affiliation PI 2 Fund Source 2 Amount 2 PI 3 Affiliation PI 3 Fund Source 3 Amount 3
CE Schmidt PI 2 Affiliation PI 2 Fund Source 2 Amount 2 PI 3 Affiliation PI 3 Fund Source 3 Amount 3
CE Schmidt PI 2 Affiliation PI 2 Fund Source 2 Amount 2 PI 3 Affiliation PI 3 Fund Source 3 Amount 3
CE Schmidt PI 2 Affiliation PI 2 Fund Source 2 Amount 2 PI 3 Affiliation PI 3 Fund Source 3 Amount 3
CE Schmidt PI 2 Affiliation PI 2 Fund Source 2 Amount 2 PI 3 Affiliation PI 3 Fund Source 3 Amount 3
CE Schmidt PI 2 Affiliation PI 2 Fund Source 2 Amount 2 PI 3 Affiliation PI 3 Fund Source 3 Amount 3
CE Schmidt PI 2 Affiliation PI 2 Fund Source 2 Amount 2 PI 3 Affiliation PI 3 Fund Source 3 Amount 3
PI 2 Affiliation PI 2 Fund Source 2 Amount 2 PI 3 Affiliation PI 3 Fund Source 3 Amount 3
PI 3 Affiliation PI 3 Fund Source 3 Amount 3
PI 3 Affiliation PI 3 Fund Source 3 Amount 3
Report Location
Related info 1
http://www.4cleanair.org/Documents/APCODetermination.pdf
Delete 12-fe 0
Related info 2
Please provide project updates and corrections to:

Date:	6/29/2009

California Air Resource Board Emission Inventory Branch Summary of Agricultural Emissions Research in California

- Cui				
Project ID Project T	ype	us	Estimated	
18 Livestock	Study		Completion	
			Date	
Drainat Nama				
Project Name	ounds (VOCs) and Th	neir GHG Emissions from	Growing and	4
Finishing Feedlot Stee		ieli Olio Lillissions nom	Growing and	
Project Description				_
				_
DI 4	Affiliation PI 1	Fund Source 1	Λ.	mount 1
PI 1 F. Mitloehner	UC Davis	Fund Source 1	A	mount i
r. Milloenner	OO Davis			
DI O	Affiliation DLO	Fund Course 2	Δ.	manust O
PI 2	Affiliation PI 2	Fund Source 2	A	mount 2
DI O	A COLL CL. DI O			1.0
PI 3	Affiliation PI 3	Fund Source 3	A	mount 3
Report Location				
Related info 1				
Related info 2				
	ject updates and corre			
Janet Spencer, Pla	anning and Technical S	Support Division		

ח	а	ŧ	Δ	٠	

6/29/2009

California Air Resource Board Emission Inventory Branch Summary of Agricultural Emissions Research in California

	ct Type ment Study	Status		Estimated Completion Date	December 2006
Project Name					
JC Equipment Mat	ching Funds Progr	am			
Project Description					
기 1	Affiliation PI		nd Source 1		Amount 1
Mitloehner	UC Davis		Davis, Chance search	ellor for	\$140,000
기 2	Affiliation PI	2 Fu	nd Source 2		Amount 2
기 3	Affiliation PI	3 Fu	nd Source 3		Amount 3
Report Location					
Related info 1					
Related info 2					
Please provide	project updates ar Planning and Tecl	nd corrections	to:		

California Air Resource Board Emission Inventory Branch Summary of Agricultural Emissions Research in California

	- Cu	, c				
	Project Typ		Status		Estimated	TBD
20	Manure Dig	gester			Completion	
	<u> </u>				Date	
Project Name						
Covered Lago		r Emission I	Measureme	ents		
Project Descr	iption					
		nethane, an	d VOCs at	dairies with CEC fu	nded dairy dige	ester
nstallations.					, ,	
PI 1		Affiliation P	l 1	Fund Source 1		Amount 1
BD		TBD		CEC		\$500,000
PI 2		Affiliation P	12	Fund Source 2		Amount 2
N 0		ACCIL: C: D	1.0	F 10 0		A 10
ય 3		Affiliation P	13	Fund Source 3		Amount 3
Report Loca	tion					
	L					
Related info	1					
13 studies u		earch term "	Digester":			
http://www.e	nergy.ca.go	ov/publicatio	ns/searchR	eports.php		
Related info	2					
Possible RF		n early 2006				
		, 2000				
Please pr	ovide proje	ct updates a	and correction	ons to:		
Janet Spe	encer, Plan	ning and Te	chnical Sup	port Division		

California Air Resource Board Emission Inventory Branch Summary of Agricultural Emissions Research in California

Project ID Project Manure		Estimated Completion Date	Unknown
Project Name			
Establishment of testi funded)	ng protocols for manure t	reatment (not sure if project was e	ever
Project Description			
NH3 or VOC emission	n. Investigate the mechan ultimedia effects of produc	ommercial products claimed to mi ism for creating the reduction by e cts on dairies. Develop a protocol	each
PI 1	Affiliation PI 1	Fund Source 1	Amount 1
D. Meyer	UC Davis	SCAQMD	7 tinodite 1
PI 2	Affiliation PI 2	Fund Source 2	Amount 2
W. Powers			
PI 3 E. Tooman	Affiliation PI 3	Fund Source 3	Amount 3
Report Location			
Related info 1			
Related info 2			
	roject updates and correct		

California Air Resource Board Emission Inventory Branch Summary of Agricultural Emissions Research in California

Project ID 22 Project PM Em		In progress	Estimated Completion Date	July 2006
Project Name				
Agricultural sources o	of PM10 and ozone pred	cursors		
	IH3 emission factors. Mowind and downwind of		s of VOC releve	ent to
	Affiliation DL 4	Fund Course 4		A
PI 1 R. Flocchini	Affiliation PI 1 UC Davis	Fund Source 1 USDA		\$374,145
PI 2 C. Parnell	Affiliation PI 2 Texas A&M	Fund Source 2		Amount 2
PI 3 R. Higashi	Affiliation PI 3 UC Davis	Fund Source 3		Amount 3
Report Location Related info 1				
Related info 2				
	roject updates and correlations and Technical S gov			

California Air Resource Board Emission Inventory Branch Summary of Agricultural Emissions Research in California

Project Name Developing a Process Project Description Using biological princi	ns Modeling Based Model for GHG fo	or California Dairies develop a cradle-to-grave emission	June 2007		
PI 1 F. Mitloehner	Affiliation PI 1 UC Davis	Fund Source 1 CEC PIER	Amount 1 \$119,000		
PI 2 W. Salas	Affiliation PI 2 Univ. New Hampshire	Fund Source 2	Amount 2		
PI 3 R. Zhang	Affiliation PI 3 UC Davis	Fund Source 3	Amount 3		
Report Location page 259 at: http://www.ncsu.edu/airworkshop/Ag_Air_Quality _Modeling.pdf Related info 1 Funded with \$500,000 total - \$119,00 for Mitloehner portion					
Related info 2					

California Air Resource Board **Emission Inventory Branch** Summary of Agricultural Emissions Research in California

Project Type Livestock Study	Status	Completed	Estimated Completion	2005
			Date	

Project Name

Development of a Process-Based Ammonia Model for Livestock Sources

Project Description

Develop a process-based model of ammonia emissions from five types of animal feeding operations: dairy, beef, swine, chicken, and turkey.

PI 1 G. Tonneson	Affiliation PI 1 UC Riverside	Fund Source 1 LADCO	Amount 1 \$250,000
PI 2 Z. Wang	Affiliation PI 2 UC Davis	Fund Source 2 Lake Michigan Air Directors Consortium	Amount 2
PI 3 G. Mansell	Affiliation PI 3 ENVIRON Int'l Corp.	Fund Source 3	Amount 3

Report Location

EPA conference at: http://www.epa.gov/ttn/chief/conference/ei14/ind ex.html (search Zhang)

Related info 1

Other researchers - J. Fadel, R. Zhang, G. Mansell, J. Haasbeek.

Related info 2

Abstract on page 9 at: http://www.epa.gov/ttn/chief/conference/ei14/final2005.pdf

California Air Resource Board Emission Inventory Branch Summary of Agricultural Emissions Research in California

	Project Type Education Study	Status	Completed	Estimated Completion Date	March 2005	
Project Name						
Development Program (CD0	of an Air Module Curr QAP)	iculum for the	California Dairy C	Quality Assuran	се	
Project Descri	iption					
PI 1	Affiliation I	기 1	Fund Source 1		Amount 1	
F. Mitloehner	UC Davis		US EPA		\$50,000	
PI 2 D. Meyer	Affiliation I UC Davis,		Fund Source 2		Amount 2	
PI 3 M. Payne	Affiliation I	인 3	Fund Source 3		Amount 3	
Report Location http://www.cdqa.org/reports/CDQAP%20Annual %20Report%202005.pdf						
Related info	1					
	cleanair.org/Documer	ts/APCODete	ermination.pdf			
Related info	2					
Please pro	ovide project updates	and correctio	ns to:			

Janet Spencer, Planning and Technical Support Division jspencer@arb.ca.gov 916.324.2717

California Air Resource Board Emission Inventory Branch Summary of Agricultural Emissions Research in California

Project ID Project Ty		Completed	Estimated	December 2005
26 Ammonia	Emisisons		Completion	
			Date	
Project Name				
	or Monitoring Ammonia E	missions		
	oog /oa _			
Project Description				
has been developed for testing was performed	ed on fibre-amplifier enh r measuring ambient ami in environmental chambe vs were allowed to accun	monia in agricultural ers at UC Davis whe	settings. Field re the excreta	
PI 1	Affiliation PI 1	Fund Source 1		Amount 1
C. Patel	Pranalytica	USDA - SBIR I		\$20,000
O. I dioi				, 2,222
PI 2	Affiliation PI 2	Fund Source 2		Amount 2
F. Mitloehner	UC Davis			
PI 3	Affiliation PI 3	Fund Source 3		Amount 3
Report Location	http://www.pranalytica.c 2005.pdf	om/pdf/MST-16-154	7-	
Related info 1				
	0 for Mitloehner portion			
	·			
Related info 2				
	ıblishing, Meas. Sci. Tecl	hnol. 16 (2005) 1547	7-1553	

California Air Resource Board Emission Inventory Branch Summary of Agricultural Emissions Research in California

Project ID Project Ty 27 Ammonia	vpe State	JS	Estimated Completion	December 2006
			Date	
Project Name				
aser-based Sensors fo	or Monitoring Ammon	ia Emissions		
Project Description				
nas been developed for esting was performed in	measuring ambient and environmental char	enhanced photoacoustic ammonia in agricultural nbers at UC Davis wher cumulate, providing a sc	settings. Field e the excreta	d
21.4	Affiliation PI 1	Fund Source 1		Amount 1
PI 1 C. Patel	Pranalytica	USDA - SBIR II		\$75,000
J. Falei	Tanaryaoa	OOD/(ODII(II		Ψ7 0,000
미2	Affiliation PI 2	Fund Source 2		Amount 2
F. Mitloehner	UC Davis			
PI 3	Affiliation PI 3	Fund Source 3		Amount 3
Report Location				
Related info 1				
\$350,000 (\$75,000 for	Mitloehner portion)			
Related info 2				
	ect updates and corre			

California Air Resource Board Emission Inventory Branch Summary of Agricultural Emissions Research in California

	Project Ty Livestock		Status	Completed	Estimated Completion Date	July 2005
Project Name						
Effect of Atmo	spheric Aı	mmonia on I	Pig Welfare			
Project Descri	ption					
PI 1		Affiliation F	PI 1	Fund Source 1		Amount 1
F. Mitloehner		UC Davis		National Pork B	oard	\$40,000
PI 2		Affiliation F	PI 2	Fund Source 2		Amount 2
PI 3		Affiliation F	PI 3	Fund Source 3		Amount 3
Report Locat		http://www.p		ract: Science/Resear INER.ABS.8-27		
Related info	1					
Related info	2					
			and correction			

California Air Resource Board **Emission Inventory Branch** Summary of Agricultural Emissions Research in California

Project ID Project		Status	In progress	Estimated	September 2011
29 Worker	Exposure			Completion Date	
				Date	
Project Name					
Respiratory Exposure	s and Health o	of Workers on	California Dairies	(NIOSH)	
Project Description					
Monitor exposures of					efine
the concentrations of	any airborne p	ollutants high	y associated with	respiratory	
problems.					
	0.000	N. 4	- 10		A
PI 1	Affiliation F UC Davis		Fund Source 1 NIOSH		Amount 1 \$1,700,000
F. Mitloehner	UC Davis		NIOSH		\$1,700,000
DI O	Affiliation [21.2	Tund Course O		Amount 2
PI 2 M. Schenker	Affiliation F UC Davis	71 2	Fund Source 2		Amount 2
ivi. Ocheniker	OC Davis				
PI 3	Affiliation F	01.3	Fund Source 3	<u> </u>	Amount 3
D. Bennett	Ailliation	13	una Source S		Amount 3
D. Bormon					
Report Location					
Related info 1					
UC Davis' program -	· CA Dairy Env	riron Health Re	esearch Inititative	(Cal-DEHRI)	
Related info 2					
Field phase in progre	ess, June 200	8			
Please provide pr	oject updates	and correction	ns to:		

Janet Spencer, Planning and Technical Support Division jspencer@arb.ca.gov 916.324.2717

California Air Resource Board Emission Inventory Branch Summary of Agricultural Emissions Research in California

Project ID 30	Project Type Pesticide Study	Status	Completed	Estimated Completion Date	February 2006
Project Name Investigation	of Atmospheric Ozone	Impacts of Se	elected Pesticides	S	
	ription thods for estimating an or which such estimate			r selected pesti	cide
	Affiliation [) 4 F	Tund Course 1		Amount 1
PI 1 W. Carter	Affiliation F UC Riversi		Fund Source 1 ARB		Amount 1 \$100,000
PI 2	Affiliation F	PI 2	Fund Source 2		Amount 2
PI 3	Affiliation F	PI3	Fund Source 3		Amount 3
Report Loca		an. 10, 2007 a arb.ca.gov/rese	vailable at: earch/apr/past/04	1-	
Related info	1				
Related info	0.2				
Janet Sp	rovide project updates encer, Planning and Te @arb.ca.gov				

916.324.2717

California Air Resource Board Emission Inventory Branch Summary of Agricultural Emissions Research in California

Project ID	Project Typ		Status	In progress	Estimated	June 200	7
31	Pesticide S	tudy			Completion Date		
Project Name							
Agricultural F Potential	esticide VO	C Sources a	nd their Phot	ochemical Ozo	ne Formation		
Project Desc							
				al O3 formatior Ioaquin Valley.	n potential of VC	Cs	
PI 1		Affiliation PI	1 F	und Source 1		Amoun	t 1
B. Flocchini		UC Davis		SDA		\$400	
PI 2		Affiliation PI	2 F	und Source 2		Amoun	t 2
R. Higashi		UC Davis					
PI 3		Affiliation PI	3 F	und Source 3		Amoun	t 3
M. Kleeman		UC Davis					
Report Loca	ation						
Related info							
http://airqua	llity.ucdavis.	edu/pages/e	vents/2008/g	reen_acres/GR	EEN.pdf		
Related info	2						
Please p	rovide proje	ct updates ar	nd correction	s to:			

Janet Spencer, Planning and Technical Support Division jspencer@arb.ca.gov 916.324.2717

California Air Resource Board Emission Inventory Branch Summary of Agricultural Emissions Research in California

	Project Typ Emissions		Status	Completed	Estimated Completion	2005	
32	EIIIISSIOIIS	wiiligalion			Date		
<mark>Project Name</mark> Commercializ		ermittent Wa	ater Sealing				
Project Descr							
dentify optimapplication of		nagement s	trategies for	water sealing co	mmercial-scale		
21.4		Affiliation Pl	1.4	Fund Source 1		Amou	int 1
PI 1 D. Sullivan		Sullivan Environmer		USDA			8,000
PI 2 H. Ajwa		Affiliation Pl	12	Fund Source 2		Amou	nt 2
PI 3		Affiliation Pl	13	Fund Source 3		Amou	nt 3
. Radewald							
Report Loca	htion h	nttp://mbao.o eplant/8/Sull	org/2005/MB livan.pdf	AO%202005%20)pdfs/P		
Related info	1						
CDPR partic		e study					
Related info	2						
Please pr	ovide proje	ct updates a	nd correctio	ns to:			

Janet Spencer, Planning and Technical Support Division jspencer@arb.ca.gov 916.324.2717

California Air Resource Board **Emission Inventory Branch** Summary of Agricultural Emissions Research in California

Project ID 33 Project T Ammonia	ype a Emisisons	Status		Estimated Completion Date	December 2005
Project Name					
mproved Statewide Es	stimates of Amn	nonia Emissi	ons from Native	e Soils in Califor	nia
Project Description					
Develop California spe within California	cific ammona ei	nission facto	ors and modelir	ng for native soil	S
임 1	Affiliation PI	F	und Source 1		Amount 1
C. Krauter	CSU Fresno		RB		\$200,000
PI 2	Affiliation PI 2	2 F	und Source 2		Amount 2
C. Potter	NASA Ames				
인 3	Affiliation PI 3	F	und Source 3		Amount 3
S. Klooster	CSU Montere	ey 📗			
Report Location					
Related info 1 2003 Presentation at	FPA conference	Δ			
http://www.epa.gov/tti			x.html (search	Krauter)	
Related info 2					

Janet Spencer, Planning and Technical Support Division jspencer@arb.ca.gov 916.324.2717

California Air Resource Board Emission Inventory Branch Summary of Agricultural Emissions Research in California

	Project Ty		Status	Completed	Estimated	June 2005
34	Crop Study	y			Completion	
					Date	
Project Name						
Monitoring of	Ammonia	Emissions fi	rom Crop Prod	duction With a I	unable Diode La	aser
Project Descr	iption					
		OL system fo	or the determin	nation of ambier	nt ammonia leve	ls
and ammonia						
PI 1		Affiliation F	PI 1	Fund Source 1		Amount 1
C. Krauter		CSU Fresr		CSU Agricultura	l Research	\$296,000
				nitiative		
PI 2		Affiliation F	PI 2	Fund Source 2		Amount 2
D. Goorahoo		CSU Fresr		and Course 2		7 timodine 2
2. 000.000						
DI 0		Λ ((:): - (:	N 0			A + O
PI 3 B. Goodrich		Affiliation F		Fund Source 3		Amount 3
B. Goodrich		CSU Fresi	10			
Report Loca			5 EPA conference			
				ef/conference/e	i14/ind	
		ex.html (sea	rch Krauter)			
Related info	1					
\$296,000 AF	RI to match	n ARB and U	IniSearch fund	ding		
				-		
Related info	2					

California Air Resource Board **Emission Inventory Branch** Summary of Agricultural Emissions Research in California

	_					
	ect Type	Status	Proposed	Estimated	2011 (CA	in 2009)
35 PM E	Emissions			Completion		
				Date		
Project Name						
Cotton Gin PM Em	issions Research					
Project Description						
	acy of US EPA's sa	mpling metho	ods which may si	gnificantly ove	er-	
	sions (CTM-039, P 2					
	for PM10, PM2.5, to				erize	
oarticle size, shape	e. Six test sites, 1 in	CA.		,		
	ACCU-C DI				Δ	
<u> </u>	Affiliation PI USDA ARS L		ind Source 1	uotra (on d	Amoun	
И. Buser	TX		arious cotton indu nners associatior		\$147,	,500
	I	gii	iners association	15		
인 2	Affiliation PI		ind Source 2		Amoun	
D. Whitelock	ARS - SWCc		RB		\$45,	,000
	Ginning Rese	earch				
ମ 3	Affiliation PI	3 Fu	ind Source 3		Amoun	t 3
C. Boykin	Cotton Ginnii		IVAPCD			,000
,	Research Un					
Report Location						
Related info 1						
. Colated IIIIO I						
Related info 2						

_					
ר	а	t	۵	٠	

California Air Resource Board Emission Inventory Branch Summary of Agricultural Emissions Research in California

Project ID 36 PM Em		Proposed	Estimated Completion Date	??
<mark>Project Name</mark> Evaluation of PM Em	issions from Raisin Har	vesting (PROPOSED)	1	
Project Description Evaluate emissions f	rom three different table	e grape harvesting tecl	nniques	
PI 1	Affiliation PI 1	Fund Source 1		Amount 1
C. Krauter	CSU Fresno	??		
PI 2	Affiliation PI 2	Fund Source 2		Amount 2
PI 3	Affiliation PI 3	Fund Source 3		Amount 3
Report Location				
Related info 1				
Related info 2				
	roject updates and correlations			

California Air Resource Board Emission Inventory Branch Summary of Agricultural Emissions Research in California

Project ID Project Emissio	Type State	Estimated Completion Date	
Project Name			
	Emissions Reductions	Achieved by Lower Emitting Agricult	ural
Project Description			
	effectiveness of two SJ servation tillage and co	IVAPCD Conservation Management ombined operations)	
PI 1	Affiliation PI 1	Fund Source 1	Amount 1
		US EPA RARE ??	
PI 2	Affiliation PI 2	Fund Source 2	Amount 2
PI 3	Affiliation PI 3	Fund Source 3	Amount 3
Report Location Related info 1 Related info 2			
	oject updates and corr lanning and Technical		

Date:	6/29/2009

California Air Resource Board Emission Inventory Branch Summary of Agricultural Emissions Research in California

Project ID 870 Project N2O En		Proposed Estimated Completio Date	
Project Name			
Fertilizer N2O Resear	rch (PROPOSED)		
Project Description			
ARB, CEC, CDFA are	e responding to RFPs rele	ased eanler in 2008.	
PI 1	Affiliation PI 1	Fund Source 1	Amount 1
?	?	ARB	
PI 2	Affiliation PI 2	Fund Source 2	Amount 2
		CEC	
PI 3	Affiliation PI 3	Fund Source 3 CDFA	Amount 3
Report Location			
Related info 1			
Project selection dat	res: CEC 8/08, CDFA 10/0	08, ARB 11/08	
Related info 2			
Please provide pr	oject updates and correct	tions to:	

California Air Resource Board Emission Inventory Branch Summary of Agricultural Emissions Research in California

Project ID 39	Project Typ VOC Emiss		Status	Completed	Estimated Completion Date	Octob	oer 2007
Project Name							
DPR Round-f	Robin VOC	Study					
Project Descr							
formulations I traditional TG but only slight	by comparing A testing. Ratly. Most of the but from	ng the emiss tesults show the VOC inc EtOH in fue	sions under ved more oz rease after	zone production	to emissions see on the downwind from the solven	side,	
DI 4		Affiliation P	l 1	Fund Source 1		Λm	ount 1
PI 1 P. Green			11	None; cooperative effort of industry including European		AIII	ount 1 \$0
PI 2	Affiliation PI 2		12	Fund Source 2		Amount 2	
PI 3		Affiliation P	13	Fund Source 3		Am	ount 3
Report Loca	h		dpr.ca.gov/d	date unknown: docs/emon/vocs/	/vocproj/		
Related info	1						
Related info	2						
	ovide proje			ons to:			

California Air Resource Board Emission Inventory Branch Summary of Agricultural Emissions Research in California

Project ID 40 Project VOC Er	Type Status missions	Estimated Completion Date	??
Project Name			
	of VOCs from Agricultural	Soil Fumigation: Comparing Emis	ssion
Estimates from Simpl		5 , 5	
Project Description			
	r cumulative and hourly er	missions rates from laboratory, fiel	ld plot
and predictive models	s which will be compared ral emission reduction stra	to previous large-scale field	
DI 4	Affiliation PI 1	Fund Source 1	Amount 1
PI 1 Dr. Yates	??	??	Amount
DI. Tales			
DI O	Affiliation DLO	Fund Course 2	Amount 2
PI 2	Affiliation PI 2	Fund Source 2	Amount 2
PI 3	Affiliation PI 3	Fund Source 3	Amount 3
10	7 (Timation 1 1 0	Tana ocurse o	7 tillount o
Report Location			
Related info 1			
Related info 2			
	roject updates and correct lanning and Technical Su		

California Air Resource Board **Emission Inventory Branch** Summary of Agricultural Emissions Research in California

	ect Type ure Digester	Status	Completed	Estimated Completion	August 2001
				Date	
Project Name					
Interim Report: So	ources and Sinks of I	PM10 in the S	3an Joaquin V	alley, August 20	01
Project Description					
Evaluate on-field I feedlots and dairie	PM10 emissions. Eves.	valuate PM10	and ammona	emissions for	
PI 1	Affiliation PI	1 Fı	und Source 1		Amount 1
R. Flocchini	UC Davis		SDA		7 tilloditt 1
PI 2	Affiliation PI	2 Fu	und Source 2		Amount 2
T. Cassel	UC Davis				
PI 3	Affiliation PI	3 Fu	und Source 3		Amount 3
Report Location	http://www.arb (Search on au			р	
Related info 1					
Related info 2					
	e project updates an				

California Air Resource Board **Emission Inventory Branch** Summary of Agricultural Emissions Research in California

Statewide Inventory Estimates of Ammonia Emissions from Native Soils and Chemical Fertilizers in California Project Description Measure and model ammonia emissions from agricultural fertilizer application and natural soils. Report available at: ftp://ftp.arb.ca.gov/carbis/reports/l522.pdf PI 1 C. Krauter Affiliation PI 1 CSU Fresno Affiliation PI 2 Fund Source 1 ARB \$186,425	
Project Name Statewide Inventory Estimates of Ammonia Emissions from Native Soils and Chemical Fertilizers in California Project Description Measure and model ammonia emissions from agricultural fertilizer application and natural soils. Report available at: ftp://ftp.arb.ca.gov/carbis/reports/l522.pdf PI 1 C. Krauter Affiliation PI 1 CSU Fresno Fund Source 1 ARB \$186,425 PI 2 Affiliation PI 2 Fund Source 2 Amount 2	
Statewide Inventory Estimates of Ammonia Emissions from Native Soils and Chemical Fertilizers in California Project Description Measure and model ammonia emissions from agricultural fertilizer application and natural soils. Report available at: ftp://ftp.arb.ca.gov/carbis/reports/l522.pdf PI 1 C. Krauter Affiliation PI 1 CSU Fresno Fund Source 1 ARB \$186,425 PI 2 Affiliation PI 2 Fund Source 2 Amount 2	
Project Description Measure and model ammonia emissions from agricultural fertilizer application and natural soils. Report available at: ftp://ftp.arb.ca.gov/carbis/reports/l522.pdf PI 1 C. Krauter Affiliation PI 1 CSU Fresno Fund Source 1 ARB \$186,425 PI 2 Affiliation PI 2 Fund Source 2 Amount 2	
Project Description Measure and model ammonia emissions from agricultural fertilizer application and natural soils. Report available at: ftp://ftp.arb.ca.gov/carbis/reports/l522.pdf PI 1 C. Krauter Affiliation PI 1 CSU Fresno Fund Source 1 ARB \$186,425 PI 2 Affiliation PI 2 Fund Source 2 Amount 2	
Measure and model ammonia emissions from agricultural fertilizer application and natural soils. Report available at: ftp://ftp.arb.ca.gov/carbis/reports/l522.pdf PI 1	
PI 1	
C. Krauter CSU Fresno ARB \$186,425 PI 2 Affiliation PI 2 Fund Source 2 Amount 2	
C. Krauter CSU Fresno ARB \$186,425 PI 2 Affiliation PI 2 Fund Source 2 Amount 2	
C. Krauter CSU Fresno ARB \$186,425 PI 2 Affiliation PI 2 Fund Source 2 Amount 2	
C. Krauter CSU Fresno ARB \$186,425 PI 2 Affiliation PI 2 Fund Source 2 Amount 2	
PI 2 Affiliation PI 2 Fund Source 2 Amount 2	
C. Potter NASA Ames	
PI 3 Affiliation PI 3 Fund Source 3 Amount 3	
S. Klooster CSU Monterey	
	_
Report Location http://www.arb.ca.gov/app/library/libcc.php	
(search on author = Potter)	
Related info 1	
- tolated line 1	
Related info 2	
Please provide project updates and corrections to:	

California Air Resource Board Emission Inventory Branch Summary of Agricultural Emissions Research in California

Project ID 43 Project I PM Emis		Completed	Estimated Completion Date	June 1996
Project Name Results of the Measur Livestock Waste	ement of PM10 Precurs	or Compounds from	Dairy Industry	
Project Description Using environmental f	lux chambers, evaluate	dairy ammonia and F	ROG emissions	5.
	Affiliation DL 1	Fund Course 1		Amount 1
PI 1 C. Schmidt	Affiliation PI 1 Consultant	Fund Source 1 South Coast AQN	ИD	Amount 1
PI 2	Affiliation PI 2	Fund Source 2		Amount 2
PI 3	Affiliation PI 3	Fund Source 3		Amount 3
Report Location	http://www.epa.gov/ttn sion1/schmidt.pdf	n/chief/conference/ei1	14/ses	
Related info 1				
	//rules/proposed/pr1127	.html		
Related info 2				
	oject updates and correc anning and Technical So gov			

916.324.2717

California Air Resource Board Emission Inventory Branch Summary of Agricultural Emissions Research in California

	Project Ty VOC Emis		Status	Completed	Estimated Completion Date	January	1995
Project Name	!						
Results of the	Measurer	nent of Volat	ile Organic C	Compounds fror	n Livestock Was	tes	
Project Descr							
Evaluate proc	ess specif	ic VOCs fron	n dairies in th	ne Sacramento	region.		
DI 4		Affiliation P	1.4	Fund Source 1		Amou	int 1
PI 1 C. Schmidt		Consultant		US EPA		AIIIOU	III I
PI 2		Affiliation P	12	Fund Source 2		Amou	int 2
PI 3		Affiliation P	13	Fund Source 3		Amou	int 3
Report Loca	tion						
Related info http://www.4		g/Document	s/APCODete	rmination.pdf			
Related info	2						
Please pr	ovide proje	ect updates a	ind correction	ns to:			

California Air Resource Board Emission Inventory Branch Summary of Agricultural Emissions Research in California

	Project Ty		Status	Completed	Estimated	January 2002	
45	Dairy Was				Completion		
	Managem	ent			Date		
Duningt Name	_						
Project Name		ok Mooto Mo	nagament D	Practices in the S	outh Coost Air B	Pooin	
Survey Curre	ni Livesioo	k wasie wa	nagement P	ractices in the S	Outri Coast All B	asin	
Project Descr							
Evaluate mar							
http://www.aq	md.gov/ruإ	les/proposed	l/pr1127.htm	าไ			
PI 1		Affiliation F	11	Fund Source 1		Amount 1	
Egigian-Nicho	ols	Tetra Tech		South Coast AC	QMD		
_9.9							
PI 2		Affiliation F	01.2	Fund Source 2		Amount 2	
ГІС		Allilation	12	i una source z		Amount 2	
D. 6		A 66111		E 10 0			
PI 3		Affiliation F	13	Fund Source 3		Amount 3	
Donort Loos	ation	http://www.	amad ans the id	es/support.html			
Report Loca	IIIOII	nup.//www.a	qma.gov/rui	es/support.ntmi			
Related info	1						
resided into							
Related info	2						
Please pr	rovide proje	ect updates	and correction	ons to:			

California Air Resource Board **Emission Inventory Branch** Summary of Agricultural Emissions Research in California

		Project Type	Status	Completed	Estimated	March 2003
	46	Livestock Waste			Completion	
		Management			Date	
Г	Project Name	`				
	roject Name		Programe Lives	stock Waste Mana	gement Practice	26
		Control Option Ass		SIUCK VVASIE IVIAITA	igement Fractice	75
		<u> </u>				
	Project Desc					
		vey of waste man qmd.gov/rules/pro				
F	ય ય 1	Affilia	ition PI 1	Fund Source 1		Amount 1
_	gigian-Nich		Tech Inc	South Coast AC	QMD	
	-g.g.a					
F	PI 2	Affilia	tion PI 2	Fund Source 2		Amount 2
•	. 4	Airilla	WOIII I Z	i dila Sodioo Z		/ IIIOGIII Z
F	913	Δffilia	tion PI 3	Fund Source 3		Amount 3
•	10	, trinic	MIOITI I O	I dia codice o		7 tilloditt o
	Report Loca	http://w	vww.aqmd.gov/ru	ules/support.html		
	Related info	1				
	Related info	2				

California Air Resource Board Emission Inventory Branch Summary of Agricultural Emissions Research in California

	Project Type		Status	Completed	Estimated	March 2003	i
47	Livestock Wa				Completion Date		
	Management				Date		
Project Name	j.						
		anagement	Practices I	Reducing Ammo	onia and VOCs,		
					tion Assessment		
Project Desc	rintion						
	ock practices	to reduce e	emissions.				
http://www.ac	qmd.gov/rules/	/proposed/	pr1127.htm	I			
		(III (I D)					
PI 1		<mark>ffiliation PI</mark> etra Tech I		Fund Source 1	OMD	Amount 1	
Egigian-Nich	ols	etra i ech i	nc	South Coast AC	טואוג		
PI 2	At	ffiliation PI	2	Fund Source 2		Amount 2	;
PI 3	At	ffiliation PI	3	Fund Source 3		Amount 3	
-							
Report Loca	ation http	o://www.aq	md.gov/rule	es/support.html			
Related info	1						
Related info	2						
Please p	rovide project	updates ai	nd correctio	ns to:			

California Air Resource Board **Emission Inventory Branch** Summary of Agricultural Emissions Research in California

	Project Typ		Status	Completed	Estimated	December	2003
	Livestock \				Completion		
	Manageme	ent			Date		
Project Name)						
Emissions of	Particulate		Ammonia fro	m Cattle Feedya	ards and Dairies	а	
Texas-Califor	nia Partner	ship					
Project Descr	ription						
					uency on PM an	d	
NH3 emissior	n from dry l	ots housing	beef or dairy	animals (heifers	s).		
PI 1		Affiliation F	01 1	Fund Source 1		Amount	1
B. Auvermani	n	Texas CEC		National Center	for Manure	\$12,0	
2171410111411				and Animal Was	ste		
PI 2		Affiliation F	12	Fund Source 2		Amount :	2
W. Harman		UC Davis					
PI 3		Affiliation F	913	Fund Source 3		Amount:	3
D. Meyer		UC Davis					
Report Loca	tion	nttp://amarill	o.tamu.edu/~	bauvermann/Co	onferen		
		ceProceedin	gs/effectofsp	rinkling.pdf			
Related info	1						
		u/~bauverma	ann/Conferer	ceProceedings/	index.htm		
				3			

Please provide project updates and corrections to: Janet Spencer, Planning and Technical Support Division jspencer@arb.ca.gov 916.324.2717

Related info 2

California Air Resource Board **Emission Inventory Branch** Summary of Agricultural Emissions Research in California

Project ID 49	Project Typ Dairy Emis		Status	Completed	Estimated Completion	Comp	olete
	-				Date		
Project Name	9						
Evaluating Da		Emissions	Using Flux	Chambers			
Project Descr							
				dairy, evaluate relat sh lanes, and corral			
PI 1		Affiliation F	PI 1	Fund Source 1		Am	ount 1
CE Schmidt		Contractor		ARB			\$50,000
PI 2		Affiliation F	912	Fund Source 2		Am	ount 2
				SJVAPCD			
PI 3		Affiliation F	PI 3	Fund Source 3		Am	ount 3
Report Loca	r			at: /caf/SchmidtDairyT∉	estD		
Related info	Icleanair.or	g/Documen	ts/APCODete	ermination.pdf			
Please p	rovide proje	ct updates	and correctio	ns to:			

California Air Resource Board Emission Inventory Branch Summary of Agricultural Emissions Research in California

			<i>y.</i> 10 a.1 a.1 a.1			0	
Project ID	Project Typ		Status	Completed	Estimated	Decen	nber 2005
50	Dairy Emis	sions			Completion Date		
					Date		
Project Name							
Measuring Da	airy Cow Er	nissions in a	an Environmei	ntal Chamber			
Project Descr	ription						
				mber and evalu sh waste produ	ate speciated Vocts.	oc	
PI 1		Affiliation F	PI 1	Fund Source 1		Amo	ount 1
F. Mitloehner		UC Davis		JS EPA			575,000
PI 2		Affiliation F	PI 2	Fund Source 2		Amo	ount 2
R. Flocchini							
PI 3		Affiliation F	PI 3	Fund Source 3		Amo	ount 3
J. Peters							
Report Loca	ŀ	nttp://www.a	: May 31, 2006 irb.ca.gov/ag/o sions2006.pdf	caf/MitloehnerD	airyCh		
Related info							
http://www.4	Icleanair.or	g/Documen	ts/APCODete	rmination.pdf			
Related info	2						
J Environ Q	ual 37:615-	622 (2008)					

Please provide project updates and corrections to: Janet Spencer, Planning and Technical Support Division jspencer@arb.ca.gov 916.324.2717

California Air Resource Board Emission Inventory Branch

	ect Type	Status	Completed	Estimated	
51 Dair	y Emissions			Completion	
				Date	
oject Name					
	s, Amine, and Phe	nol Emission	ns from Cows and	d their Waste	
oject Descriptio	n				
l 1	Affiliation P	11	Fund Source 1		Amount 1
. Mitloehner	UC Davis		ARB		\$200,000
2	Affiliation P		Fund Source 2		Amount 2
Trabue	USDA ARS	3			
I 3 Koziel	Affiliation P	13	Fund Source 3		Amount 3
Koziei	150				
				,	
		<u> </u>			
Report Location	http://www.a amberEmiss		/caf/MitloehnerDa f	airyCh	
	ambereniss	101132000.pu	ı		
Related info 1		4.5005			
nttp://www.4clea	nair.org/Document	s/APCODete	ermination.pdf		
Related info 2					
	nals org/cgi/conten	t/full/37/2/61/	5		
nttp://jeq.scijourr	iais.org/cgi/conten	(/IUII/0//2/01	_		

California Air Resource Board **Emission Inventory Branch** Summary of Agricultural Emissions Research in California

	, ,				
Project ID Project 7 52 PM Emis		Status	Completed	Estimated Completion	June 2004
				Date	
Project Name					
Improvement of PM10	emission factors fo	or almon	d harvesting		
Project Description					
Refine existing PM10 measured PM10 durin				nates based or	1
PI 1	Affiliation PI 1	ŀ	Fund Source 1		Amount 1
R. Flocchini	UC Davis	,	Almond Board of	California	
PI 2	Affiliation PI 2	ŀ	Fund Source 2		Amount 2
C. Parnell	Texas A&M				
PI 3	Affiliation PI 3		Fund Source 3		Amount 3
Report Location	abstract available http://asae.frymul &t=2		bstract.asp?aid=2	20039	
Related info 1					
Results showed that sampler were always					PM10

Related info 2
Contact Terry Cassel, UCD to see if report available: tacassel@ucdavis.edu

Please provide project updates and corrections to: Janet Spencer, Planning and Technical Support Division jspencer@arb.ca.gov 916.324.2717

California Air Resource Board Emission Inventory Branch Summary of Agricultural Emissions Research in California

Project ID Project Type	Status	Completed	Estimated	July 2007
53 VOC Emissions			Completion	
			Date	

Project Name

Photochemical Ozone Formation Potential of Agricultural VOC Sources

Project Description

Ozone formation potential of emissions from dairy cattle was much lower than predicted using regulatory profiles. The majority of the ozone formation is explained by ethanol (EtOH) emissions, not by acetone as previously thought. Ozone formation potential is generally small (<20 ppb) when EtOH conc. were 200 ppb and NOx conc. were 50 ppb. Results suggest that decreasing ROG (VOC) from dairy cattle, specifically by decreasing EtOH conc., will not likely lead to decreased ozone in the

PI 1 P. Green	Affiliation PI 1	Fund Source 1 USDA	Amount 1 \$300,000
PI 2 F. Mitloehner	Affiliation PI 2	Fund Source 2	Amount 2
PI 3 R. Flocchini	Affiliation PI 3	Fund Source 3	Amount 3

Report Location

http://www.sciencedirect.com/science? ob=Artic leURL&_udi=B6VH3-4S0YXTM-2&_user=1928924&_rdoc=1&_fmt=&_orig=sear ch&_sort=d&view=c&_version=1&_urlVersion=0 & userid=1928924&md5=e020b1203499a23d5

Related info 1

presentation at CDPR, date unknown:

http://www.cdpr.ca.gov/docs/emon/vocs/vocproj/voc_regional_ozone.pdf

Related info 2

Alternate site for report: Go to http://dx.doi.org and enter "doi:10.1016/j.atmosenv.2008.02.064"

Please provide project updates and corrections to: Janet Spencer, Planning and Technical Support Division ispencer@arb.ca.gov 916.324.2717

California Air Resource Board Emission Inventory Branch Summary of Agricultural Emissions Research in California

Project ID	Project Type		Status	Completed	Estimated	May 2005
54	Livestock Emi	ssions			Completion Date	
					Date	
Project Name)					
Measuring Br	oiler Emission	s in Tunnel Ve	entilated I	Housing		
Project Descr						
	10, ammonia, a iler house duri				d from a tunnel	
	0.6	rrara DIA				A 1 A
PI 1 M. Summers		filiation PI 1 DFA		und Source 1 California Poult	ry Federation	Amount 1 \$40,000
w. Summers				amorria i ouit	ry r ederation	Ψ+0,000
PI 2	Af	filiation PI 2	F	und Source 2		Amount 2
D. Duke		ster Farms		<u></u>		7 2 2
PI 3	Af	filiation PI 3	F	und Source 3		Amount 3
Report Loca	tion http	://www.arb.ca	.gov/ag/c	af/poulemisrpt	.pdf	
Related info	1					
Doloted info	2					
Related info						
	rovide project ι encer Planning					

California Air Resource Board **Emission Inventory Branch** Summary of Agricultural Emissions Research in California

Project ID	Project Type	Status	Completed	Estimated	December 2005
55	VOC Emissions		-	Completion	
				Date	

Project Name

Evaluating Dairy Reactive Organic Gas Emissions

Project Description

Chemically speciate ROG samples collected at dairies. Attempt to develop emission factors for daries and some individually tested dairy processes. Further study continues in 2005-2008.

PI 1	Affiliation PI 1 CSU Fresno	Fund Source 1 ARB	Amount 1 \$100,000
C. Krauter	COOTTESTIO	AND	\$100,000
PI 2	Affiliation PI 2	Fund Source 2	Amount 2
D. Goorahoo	CSU Fresno	CSU Foundation	\$20,000
PI 3	Affiliation PI 3	Fund Source 3	Amount 3
B. Goodrich	CSU Fresno		

Report Location

Results at 2005 US EPA Emissions Inventory Conference -

http://www.airquality.nrcs.usda.gov/AAQTF/Doc uments/Amarillo_2005/Presentation-CA%20Dairy%20ROGs%20(Krauter%20AAOTF

Related info 1

http://www.4cleanair.org/Documents/APCODetermination.pdf

Related info 2

http://www.epa.gov/ttn/chief/conference/ei15/session6/beene.pdf

Please provide project updates and corrections to: Janet Spencer, Planning and Technical Support Division ispencer@arb.ca.gov 916.324.2717

California Air Resource Board **Emission Inventory Branch**

Project ID P	roject Type	Status	In progress	Estimated	September 200
	lanure Study		, , ,	Completion	
	·			Date	
roject Name		_			
	ter Treatment Feasi	bility Study			
roject Descrip					
ssess the fear nanagement o	sibility of applying st	andard wastew	ater treatment t	echnology to the	•
nanure from co	ows in typical Califor	nia dairies. El	PA plans to inco	rporate this	
nformation into		ry monure mer	agamant		
ssessineni Ol	technologies for dai	ry manure mar	iagement.		
<u>11 </u>	Affiliation Cal-Poly S		Fund Source 1 US EPA		Amount 1 \$19,936
Γrygve Lundqι	list Cal-Poly	SLO	US EPA		\$19,930
12	Affiliation	PI 2	Fund Source 2		Amount 2
					\$0
13	Affiliation	PI 3	Fund Source 3		Amount 3
					\$0
Report Location	(When ava		n09/ag/dairy/tech	nologi	
	es.html	cpa.gov/region	ioo, ag, aan y, too	ii lologi	
Dalata Lister t					
Related info 1	o.ca.gov/ag/caf/dairy	/pnl/dairvnanel	htm		
p.// ####.Wik	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	prii dan ypanoi			
Related info 2					

Please provide project updates and corrections to: Janet Spencer, Planning and Technical Support Division jspencer@arb.ca.gov 916.324.2717